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PATTERN RECOGNITION METHOD

by

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HUMAN TRANSLATION

FTD-ID(RS)T-0326-90 5 June 1990

MICROFICHE NR: FTD-90-C-000657

PATTERN RECOGNITION METHOD

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English pages: 3

Source: USSR Patent Nr. 456262, 21 December 1972, pp. 1-2

Country of origin: USSR
Translated by: Carol S. Nack
Requester: FTD/TTTRE/J.M. Finley

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Block	Italic	Transliteration	Block	Italic	Transliteration
А а	*А а*	A, a	Р р	*Р р*	R, r
Б б	*Б б*	B, b	С с	*С с*	S, s
В в	*В в*	V, v	Т т	*Т т*	T, t
Г г	*Г г*	G, g	У у	*У у*	U, u
Д д	*Д д*	D, d	Ф ф	*Ф ф*	F, f
Е е	*Е е*	Ye, ye; E, e*	Х х	*Х х*	Kh, kh
Ж ж	*Ж ж*	Zh, zh	Ц ц	*Ц ц*	Ts, ts
З з	*З з*	Z, z	Ч ч	*Ч ч*	Ch, ch
И и	*И и*	I, i	Ш ш	*Ш ш*	Sh, sh
Й й	*Й й*	Y, y	Щ щ	*Щ щ*	Shch, shch
К к	*К к*	K, k	Ъ ъ	*Ъ ъ*	"
Л л	*Л л*	L, l	Ы ы	*Ы ы*	Y, y
М м	*М м*	M, m	Ь ь	*Ь ь*	'
Н н	*Н н*	N, n	Э э	*Э э*	E, e
О о	*О о*	O, o	Ю ю	*Ю ю*	Yu, yu
П п	*П п*	P, p	Я я	*Я я*	Ya, ya

*ye initially, after vowels, and after ъ, ь; e elsewhere.
When written as ё in Russian, transliterate as yё or ё.

RUSSIAN AND ENGLISH TRIGONOMETRIC FUNCTIONS

Russian	English	Russian	English	Russian	English
sin	sin	sh	sinh	arc sh	$\sinh^{-1}$
cos	cos	ch	cosh	arc ch	$\cosh^{-1}$
tg	tan	th	tanh	arc th	$\tanh^{-1}$
ctg	cot	cth	coth	arc cth	$\coth^{-1}$
sec	sec	sch	sech	arc sch	sech^{-1}
cosec	csc	csch	csch	arc csch	csch^{-1}

Russian	English
rot	curl
lg	log

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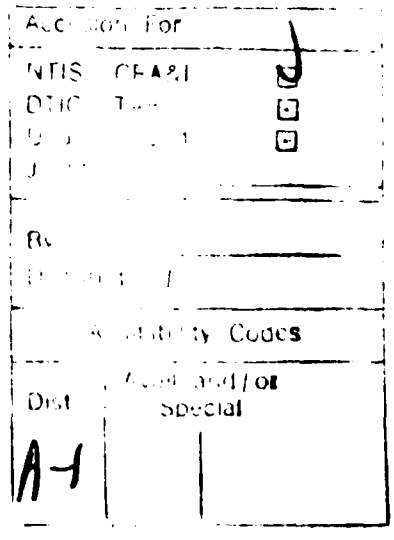

PATTERN RECOGNITION METHOD

O. I. Potaturkin, P. Ye. Tverdokhleb, Yu. V. Chuguy

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The invention pertains to computer technology and can be used in devices for optical data processing designed to solve problems of pattern recognition.

The known method of pattern recognition is based on passing a light beam through two half-tone transparencies with the subsequent integration of the light flux. The transmission law for the intensity of the first transparency corresponds to one of the functions used to determine the signs, and the transmission law of the second - to the pattern that is to be recognized. In this case, the transparencies are arranged so that the pattern of the first transparency is projected by the optical system onto the plane of the second.

The inadequate precision of this method of recognition results from the difficulty of modulating the light fluxes in proportion to the dispersion functions.

The purpose of the invention is to increase the precision of recognition.

To do this, the light flux is modulated according to the dispersion function on the *X*-axis, it is integrated on this same axis, and it is modulated according to the dispersion function on the *Y*-axis.

The figure shows a version of the device that implements this method.

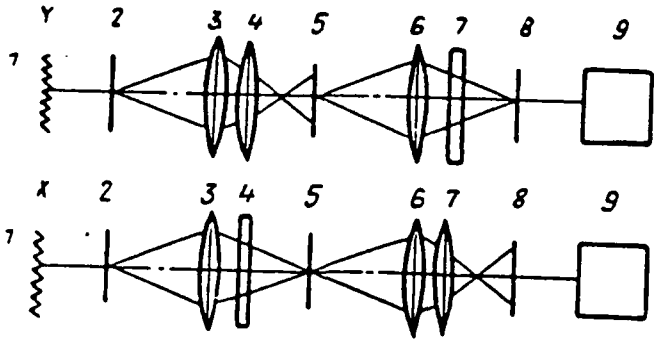

Figure.

The device contains incoherent light source 1, transparency 2 with a silhouette image of the one-dimensional component of the dispersion function on the *X*-axis, spherical lens 3, cylindrical lens 4, the transparency with the pattern to be recognized 5, spherical lens 6, cylindrical lens 7, the transparency with the silhouette image of the one-dimensional component of the dispersion function on the *Y*-axis 8, and photodetector 9.

With incoherent illumination, the spherical lens 3 together with the cylindrical lens 4 project the light flux modulated by transparency 2 in plane 5 onto the *X*-axis, and the defocused light flux - onto the *Y*-axis. Consequently, the silhouette image of the one-dimensional component of the dispersion function is transformed into a light "band" with an intensity that varies along the X-axis in proportion to this component, but is constant along the *Y*-axis. Spherical lens 6 together with cylindrical lens 7 project the light flux modulated by transparency 5 in plane 8 onto the *Y*-axis, while defocusing occurs on the X-axis. This makes it possible to obtain a light "band" in plane 8 with an intensity that varies along the *Y*-axis in proportion to the result of the integration of the product of the pattern being recognized and the original component with respect to argument *X*, but is constant along the *X*-axis. The light flux

that passes through transparency 8, proportional to the value of the corresponding spectral component, is integrated and subtracted by the photodetector 9.

Invention Claim

A method of pattern recognition consisting in the modulation of a light flux with subsequent integration *that is different* because in order to increase the precision of recognition, the light flux is modulated according to the dispersion function on the *X*-axis, it is integrated on this same axis, and it is modulated according to the dispersion function on the *Y*-axis.

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